

Running .NET Applications

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.NET Blueprint

Visual
Studio.
NET

Your Application
and Web Service

Your Internal
Services

Orchestration

.NET
Framework

Windows
CE, ME,
2000, .NET

Internet Protocols
SOAP "blue book"
HTTP, SMTP, XML

Operations

NET Enterprise
Servers

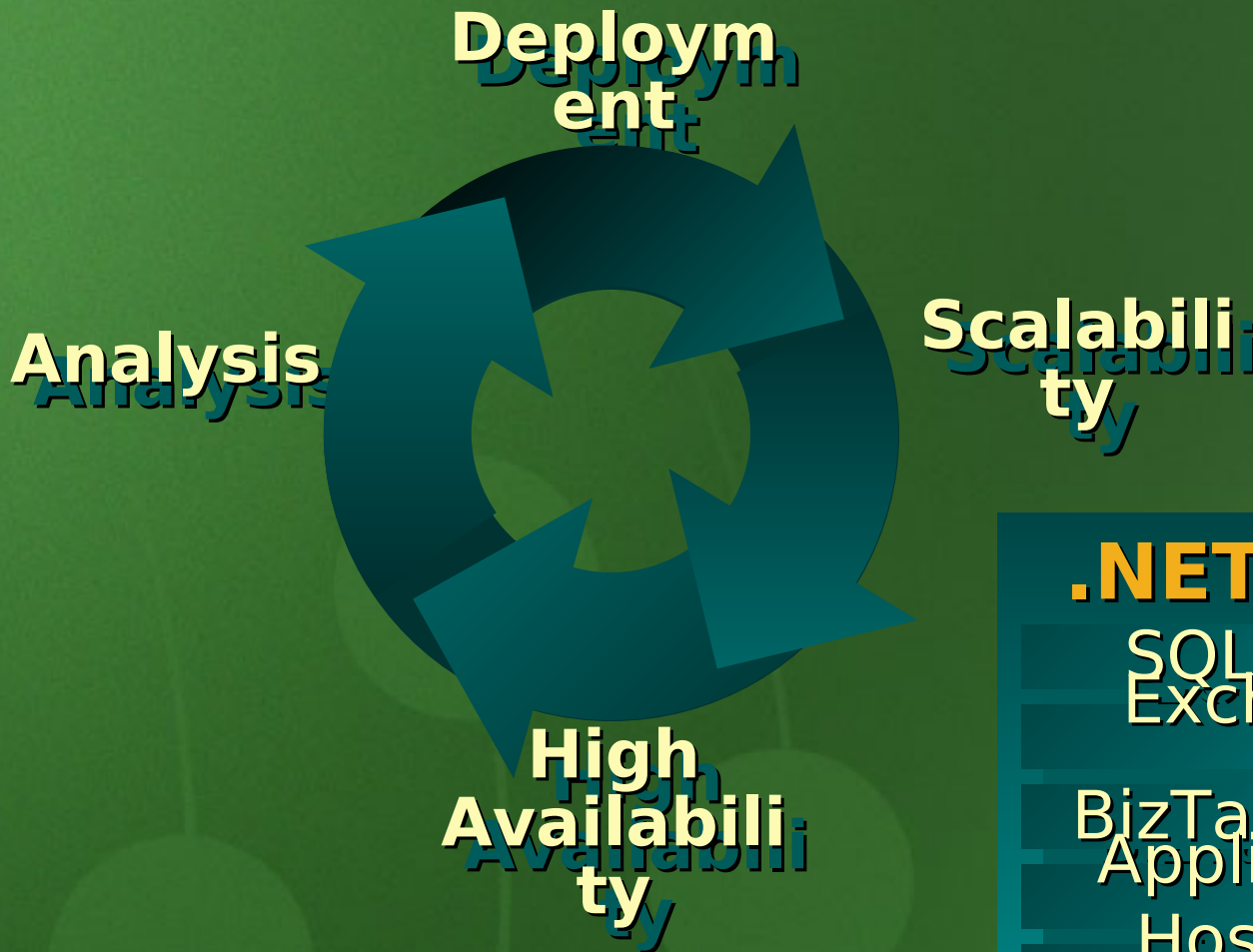
Building Block
Services

3rd Party Web Service

Applications
Using Your
Service

End-User
Clients

Operations - Detail



.NET Enterprise

SQL Server 2000
Exchange Server
2000
BizTalk Server 2000
Application Center
2000
Host Integration
Server 2000
Commerce Server
2000
ISA Server 2000

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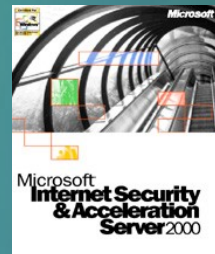
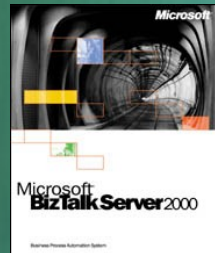
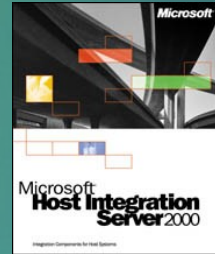
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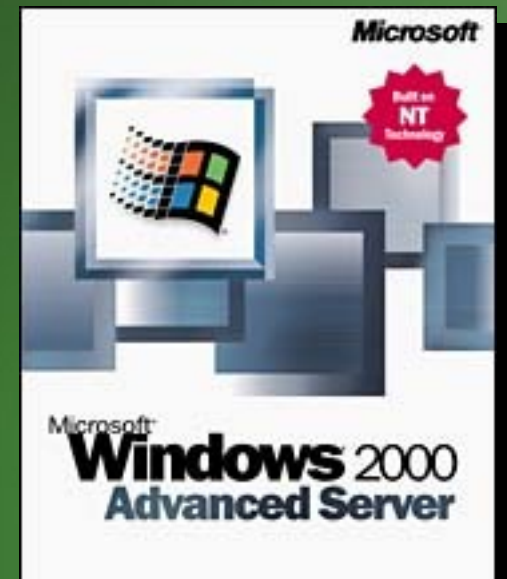
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.NET Enterprise

Servers



.NET Enterprise Servers



Operational Requirements

Deployment

- Continuous deployment
- Side-by-side install
- Site preparation

Analysis

- Understand the customer
- Large scale OLAP
- Business analyst usage

Scalability

- On-Demand Scalability
- Scale up and out at all tiers
- PC economics

High Availability

- Clustering and fail-over
- Monitoring and Management
- Lights out



Deployment: Challenges

- **Web applications in continuous state of evolution**
 - Need to support rapid and continuous deployment
- **Base platform must support friction-free install / deployment**
 - Reliable, repeatable experience
- **DLL hell**
 - Version conflicts
 - Dependencies
 - Complex registration
 - Complex removal

Side-By-Side Applications

User Group A User Group B



COM+

Partition A



Partition B



COM+ Partitions

demo

**Quentin Clark
Product Unit Manager
Application Center**

.NET Application Deployment

Enables friction-free

■ Self-Describing Applications Install/uninstall

- Simple XML meta-data format for application definition and configuration
- Single meta-data format shared by .NET infrastructure
- No IDL, Typelibs, or OS registration

■ Enables:

- Side-by-side and rolling upgrades
- Removes significant complexities associated with installation programs, multiple formats, registration, etc.
- Removal = "del *.*"

Drag & Drop Installation

demo

**Quentin Clark
Product Unit Manager
Application Center**

Scalability: Challenges

- **Must design for maximum scale**
- **Large fluctuation in load**
 - **Seasonal scale requirements**
 - **World wide product rollout**
- **Scale up and scale out**
 - **Hardware, software, and operational cost trade-offs between scale-out and scale-up**
 - **Buying the biggest, most expensive solution is what some hardware companies promote**

Scale Out Rocks!

- Easy modular expansion
- No single point of failure
- No hardware limitations to scalability
- Scalability is linear with incremental cost
- Scales down for starter or development systems
- Highest density hardware; lowest power consumption



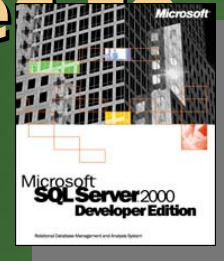
SQL Server 2000 Scalability

Scale Up



- Large memory - 64 GB

- More processors - 32
- 64-bit support
- Indexed views
- Advanced parallelism
- Large OLAP dimensions
- Multi-instance support



Scale Out

- Distributed partitioned views
- Partitioned OLAP cubes
- Coordinated backups
- System Area Networks



Scale Out On All Tiers

Firewall & Cache



Web



Business Logic



Storage



**On-Demand Scalability
Application Center 2000**

demo

**Quentin Clark
Product Unit Manager
Application Center**

Application Center 2000

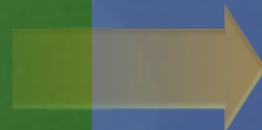
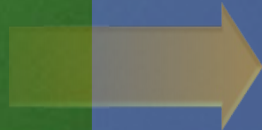
- **Scale-out for the web and component tiers**
- **Shared-nothing clustering and innovation with load-balancing providing on-demand scalability**
- **Single Application Image that is deployable in an application lifecycle and across a cluster**
- **Eventing and monitoring technologies ensure Mission Critical Availability**
- **Unified, single-point management of web and application clusters**

High Availability: Challenges

- **Web application down-time not an option**
 - Neither planned nor unplanned
- **Creating operational practices complex**
 - Web architectures comprised of many types of hardware, software
 - Load balancers, Application Servers, Web Servers, Database Server, Messaging Systems, ERP Systems, Customer Applications
 - Multiple hardware and software vendors
- **Operational and failure analysis difficult**
 - Lack of good instrumentation data
 - Plethora of APIs for gathering system health data
 - Black box infrastructure
 - Manual diagnostics and intervention typically required

Health Monitor Architecture

Providers



Windows Service

Data
Collectors
+
Thresholds

Health Monitor



Consumers

Application
Center
2000

Actions

Email

Text Log

Run EXE

Run Script

Monitoring & High-Availability

demo

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Product Unit Manager
Application Center**

Site Analysis: Challenges

- Need to understand application usage and adapt site to be more intelligent
 - Increase click to sell ratio
 - For those customers who want it, offer highly personalized interaction
 - Customer profile, transaction history, cross-sell recommendation lists
- Tune site without software modification
 - Real-time update of targeted campaigns, content, and customer classification
- Must handle large amounts of disjoint data
 - Web server logs, transaction logs

Business Internet Analytics

Enables continuous site improvement without development

- **SQL Server 2000 Analysis Services to analyze site usage**
 - Advanced data warehouse tools
 - Supports large amounts of site data
- **Commerce Server 2000**
 - Out of the box components for rapid eCommerce application development
 - Generalized personalization and targeting engine

**SQL Server 2000
Commerce Server 2000**

demo

**LJ Germinario
Product Manager
Commerce Server**

Summary And Call To Action

- .NET Enterprise Servers make possible the “abilities” for all developers
 - Windows DNA supported by .NET Servers today!
 - .NET applications will hit the ground running
- Significant innovation in data tier through SQL Server 2000
- Improving the operational experience of the Microsoft platform
 - Application Center 2000, ISA Server 2000, Commerce Server 2000, etc.
- .NET Enterprise Servers shipping in 2000

Where do **you** want to go today?

Microsoft